

OPERATIONS COORDINATING BOARD  
Washington 25, D.C.

January 10, 1957

MEMORANDUM FOR: Chairman, Committee on Broadcasting and Television (COBAT)

SUBJECT: Experimentation for Trans-Atlantic TV Broadcast

1. This is with reference to your memorandum of November 16, 1956, on the above subject requesting (1) an engineering opinion concerning the proposed Derveaux-Telecom trans-Atlantic TV system and (2) a recommendation regarding the advisability of investing perhaps \$20,000 to finance additional experimentation and demonstrations with that equipment.

2. The technical problems in attempting to utilize the existing trans-Atlantic telephone cable for the transmission of television signals involve the development of an integrated system consisting of video pickup equipment, video relay links, cable terminal equipment at both ends and equipment which may be needed to convert the signals to other TV transmission standards. From the technical information available, it appears that the work which has been done by the Derveaux firm has thus far been concentrated on the development of video pickup and reproduction equipment employing a special type of scanning system along with pre-emphasis circuits intended to produce a picture of higher quality than would normally be expected with the narrow bandwidths employed. Since this equipment is but a portion of the complete system which would be required to relay TV programs over the trans-Atlantic cable, it would be difficult, if not impossible, to predict, on the basis of the information available, how satisfactory a picture would result. Furthermore, it is not possible to determine whether the type of scanning system used in the Derveaux system is the most satisfactory. It is entirely possible that other scanning systems might prove more desirable from the standpoint of compatibility with other elements in a complete system and, at the same time, yield a more satisfactory picture with the bandwidth limitations imposed by the use of the trans-Atlantic cable.

3. It is believed that the magnitude of the time and cost which would be required to develop to a satisfactory degree of perfection a complete TV relay system utilizing the existing cable would be so great that it is difficult to understand how an investment of perhaps \$20,000.00 could contribute very much toward the development of a complete relay system.

4. Trans-Atlantic TV will, no doubt, some day become a reality but it appears that a system of the type proposed could not be generally useful at this time because of the limited amount of time the existing trans-Atlantic cable could be made available. The cable is already heavily loaded with telephone traffic, all of which would have to be discontinued during the transmission of the TV signals. In this connection, it is pointed out that the U.S. does not have exclusive rights in the use of all of the existing cable capacity, certain channels of which are used, by agreement, by other countries. Therefore, any arrangements to interrupt all of the telephone circuits in order to permit the transmission of TV signals would require the

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approval of all countries which are parties to the agreement. This is because the use of 150 kc bandwidth, which appears to be the value contemplated, would occupy the total capacity of the existing telephone cable.

5. Because of the fact that US TV broadcast transmission standards require 4,500 kilocycles for the video signal, there is serious doubt as to whether the narrow bandwidth proposed would permit the transmission of a picture which would be acceptable for viewing by the general public. In comparison with a TV picture of normal quality in this country, the narrow band TV picture of the type proposed would, because of basic physical laws, be of poorer quality in one or more respects. Reducing the bandwidth of a TV picture to the extent proposed can only be done at the expense of reducing picture detail, increasing the amount of flicker or reducing the ability to reproduce rapid motion without blurring, or a combination of these factors. Because of its magnitude and complexity, it is believed that the eventual development of a satisfactory trans-Atlantic TV system, which may be based on the use of either space radio or cables, will require long range coordinated efforts by the broadcast industry on an international scale and that such development on the part of this country should be left in the hands of that industry.

6. For the above reasons the TPFB does not recommend the investment of any Federal funds in the Derveaux-Telecom system at this time.



T. H. E. Nesbitt  
Chairman, Technical Panel for  
International Broadcasting

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